RIVER STAGES AND FLOODS FOR MARCH 1948

ELMER R. NELSON

The river stages during March were above normal in the eastern half of the country except at a few scattered points. In the western half, stages were below normal in California, Colorado, Oklahoma, Texas, Nevada, and southern Arizona.

Spring floods prevailed over a broad region extending from the eastern Great Plains to the Atlantic Coast, being most severe in southern Michigan where record or near-record-breaking stages were observed. No major floods occurred on any of the large rivers. Floods in the Upper Susquehanna River Basin on March 23 and 24 were of near-record magnitudes. At Towanda, Pa., the Susquehanna River came within 2 feet of the stage of March 19, 1936—the peak of record—flooding the lower sections of the town and causing considerable property damage. In the Southern States, moderate to locally severe floods occurred from Louisiana to the Atlantic Coast.

St. Lawrence drainage.—Moderate to heavy floods occurred in the Lake Michigan and Lake Huron drainage areas during the latter half of the month. The rivers that were in flood on the 29th of February receded slowly until March 14. This recession was caused by the return of moderately cold weather that lasted through the first half of March. Six to ten inches of new snow fell over southern Michigan during the first 3 days of the month. The streams rose rapidly on the 15th from moderate warm rains that fell on the snow-covered, frozen ground. General heavy rains, ranging from 2 to 3 inches, overspread the southern half of Lower Michigan on the 19th and continued to the 22d. This rainfall, in addition to the run-off from the snow mantle, set the stage for the major flood that occurred in the Saginaw and Grand River Basins from the 19th to the 27th. The Pine River at Alma, Mich., rose rapidly, and, aided by heavy ice jams, reached an all-time high of 12.6 feet by midnight, 0.5 foot above the previous record on March 1919. The Tittabawassee at Midland, Mich., reached a crest of 23.2 feet on the 21st, within 2 inches of the previous record of March 1928. The Shiawassee at Owosso, Mich., crested over 3 feet above flood level and equalled the previous record set in April 1947. The Cass River at Vassar, Mich., crested nearly 2 feet higher than the previous high of March 1942. The Saginaw River at Saginaw, Mich., crested at 22.4 feet, the highest since April 1929. The crest stages in the lower Grand River were the highest in 42 years. Excessive property damage resulted from this flood, principally to railroads, highways, bridges, buildings, and levees.

A series of spring freshets occurred in the Lake Erie drainage area from March 20 to the 25th, causing only flooding of lowlands and some low, riverside highways.

Atlantic Slope drainage.—Considerable flooding occurred along the Atlantic Slope during March, from New Hampshire to Georgia. The spring run-off from snow-melt began on March 21, in the Merrimack River Basin in New Hampshire as a result of the high temperatures during the preceding week and moderate amounts of precipitation on the 20th. Stages at most stations were affected by ice jams. Overflows from this condition, however, were minor and of short duration. No damage was reported. An average of 7 inches of snow remained in the mountain section of the Merrimack drainage area on the 31st of March, with a water content of 2.2 inches.

Light to locally heavy flooding occurred in the Connecticut River Basin between the 20th and 31st, from moderate rains on the 19th and 20th and unseasonably mild temperatures beginning in mid-March, which caused rapid melting of the accumulated snow cover within a relatively short period. No extensive damage occurred. A few highways were inundated for a short period in Massachusetts and Connecticut. The worst flooding occurred in the Hartford area, where some dwellings were surrounded with water nearly up to the level of the first floor. The crest stage of 24.5 feet at Hartford was the highest stage at that point since the hurricane flood of September 1938. Based on flood frequencies during the past 100 years, such a stage may be expected about every 8 or 10 years. The system of dikes around Holyoke, Mass., Springfield, Mass., and Hartford, Conn., prevent any extensive damage to those cities.

Minor flooding occurred on the Hudson River at Albany, N. Y., on the 23d. This freshet was due to snow-melt, rain, and release of water from behind ice gorges. No damage resulted.

Two significant rises occurred in the Susquehanna River Basin during the month, the first during the period of March 16–19. There were from 3 to 6 inches of water in the snow cover over the North Branch of the Susquehanna River Basin above Towanda, Pa., on the 15th. Unseasonably warm weather on March 15–16, combined with 0.4 inch of rain, caused considerable run-off from melting and light flooding at Towanda. The second and more important rise occurred between the 20th and 24th. The moderate flooding that resulted was due to heavy run-off from snow melt, caused by a prolonged period of warm weather from the 18th to the 21st combined with ½ inch of rain on the 19th. The crest at Towanda, Pa., was within 2 feet of the maximum stage of 25.03, recorded at that point on March 19, 1936.

Minor floods occurred in the Cape Fear, Neuse, Tar, and Roanoke Rivers in eastern North Carolina during March. On the 7th, rains averaged 1 inch over all the watersheds and nearly 1½ inches over the headwaters of the Neuse and Roanoke Rivers. Light overflows resulted from these rains and additional heavy rain on the 10th over the lower reaches of the Roanoke and Neuse Rivers. The principal losses from the minor overflows were to logging interests that were forced to suspend operations during the high water.

Moderately heavy rains from the 6th to 8th caused minor flooding in the streams in South Carolina. The rainfall over the Pee Dee and Edisto watersheds averaged between 1.5 and 2 inches on March 7. The Pee Dee rose 17 feet during the night at Cheraw, S. C. Heavy rains occurred again on the 17th. No property damage was reported from the overflows.

Heavy rains of from 1–2 inches occurred over a large area in Georgia on the 4th, 6th, 9th, 17th, and 23d. It was the eighth consecutive month with above-normal precipitation. The effect of the March rainfall was to produce three chief periods of rising stages, although there was practically a steady inflow to each river due to the great frequency of rainfall. Flood stages were exceeded in the Ocmulgee, Oconee, Altamaha, Ogeechee, and Savannah Rivers.

East Gulf of Mexico drainage.—Light to severe flooding occurred from Georgia and Florida to Mississippi during March. In Georgia, the lower Flint River reached stages above flood during the period of the 10th to 15th; the Apalachicola River was above flood stage throughout the month except in the upper portion. The high water in the Apalachicola River was favorable for logging interests as far as the floating of logs downstream was concerned. Agricultural fields near some rivers were inundated, and water rose into some residential areas in the lower Flint River section, creating more nuisance than real damage.

Moderate flooding occurred in the Conecuh and Choctawhatchee Rivers in Florida as a result of heavy to excessive rains from the 1st to the 6th. Rainfall during this period averaged 6.9 inches. Damage was mainly to highways and bridges.

Heavy rains, averaging around 4 inches from March 2–6, over the Warrior, Tombigbee, and Alabama Rivers in Alabama caused light flooding. Rains averaging 3.75 inches, north of Aberdeen, Miss., on the 16th and 17th, caused the Upper Tombigbee River to rise again, resulting in stages 9 to 24 feet above flood level below Gainesville, Ala.

Light to heavy rain during the first 6 days of March, averaging nearly 3 inches, caused moderate to locally severe flooding along the Pearl, Leaf, Chickasawhay, and Pascagoula Rivers in Mississippi during March. The Tombigbee, from Lock No. 3 to Lock No. 1, crested at stages 5 to 8 feet below the maximum stages of record.

Upper Mississippi Basin.—Light to moderate flooding occurred in several of the streams in the upper Mississippi Basin in Minnesota, Iowa, Illinois, and Missouri during March. Most of the ice had broken up in the main channel of the Mississippi River by March 20, permitting navigation by March 28. Flood stages were reached in the Zumbro and Whitewater Rivers in Minnesota from the 18th to the 22d, caused mainly by ice gorges at the mouths of those rivers. The high water that resulted in the several streams during the latter half of the month was due in part to rapid snow melt caused by a prolonged period of mild weather from the 13th to 25th. Heavy rains also occurred on the 16th, 19th, and 26th.

Missouri Basin.—Light to moderate flooding occurred along the Missouri River and several of its tributaries during the last half of March. Light overflows occurred during the first few days of the month along a few of the tributaries.

The Platte River at Ashland, Nebr., went nearly 1 foot above flood stage on the 1st as a result of an ice gorge. Several local overflows occurred along the Platte between Freemont and Ashland, Nebr., as a result of ice gorges with some damage to highways. Several hundred acres near the confluence of the Elkhorn and the Platte were inundated as a result of a break in a dike. This was aggravated by the rapid run-off of water from the melting of the heavy snow cover.

Moderate overflows occurred along the Big and Little Blue Rivers in Nebraska during the closing days of February and the 1st of March. Another overflow occurred later in the month that was moderate along the Little Blue, but rather severe along the Big Blue. Much land along the rivers was flooded, but crop losses were small, as the corn crop had not yet been planted. Most of the damage from these two overflows occurred to buildings and highways in Gage County, Nebr.

No losses were reported from the overflow along the Republican River in Nebraska. Twenty-thousand acres of farm land was flooded in Clay County, but the overflow was of too short duration to cause material damage.

Light overflows along the Big Sioux and Floyd Rivers in Iowa caused the closing of a few county roads.

The first high water along the Heart River in western North Dakota occurred on the 16th, about 60 miles west of Mandan. The crest reached Mandan on the morning of the 20th and flooded an area for 20 miles upstream. This flooding was caused by the run-off from melting snow in the western reaches of the river and breaking up of the ice. The ice was several feet thick at the mouth of the Heart River and 33.5 inches thick on the Missouri at Bismarck, N. Dak. The water remained high in the Mandan area until the 23d, when another volume of water and ice pouring in caused serious flooding. A highway bridge was washed out and many people were evacuated. Considerable water came down the Heart River, but the serious damage resulted from ice holding back the water and breaks in the dike.

Light flooding occurred along the Missouri River from Mobridge, S. Dak., to St. Charles, Mo., from the 19th to the 29th. This flooding was caused by run-off from melting snow and moderate to locally heavy rain on the 18th and 19th. Damage along the Missouri was negligible. Some 4,600 acres of land were inundated from Nebraska City to Lexington, Mo., but damage was small, as no ground had been prepared for spring crops.

Ohio Basin.—Some flooding occurred in seven States along the Ohio River and its tributaries during the last half of March. Several rises occurred in the streams in western Pennsylvania from the 17th to the 25th. The most important rise occurred during the last 4 days of that period, after a heavy rain that ranged from 1.25 inches at Salamanca, N. Y., to 3.12 inches at Meadville, Pa., in the upper Allegheny Basin for the 24 hours ending at 7 a. m. on the 22d. Rainfall over the Monongahela Basin for that period was light and averaged about 0.1 inch. Precipitation occurred again on the 23d. This time the heavy rains were over the Monongahela Basin, with 24-hour amounts ranging from 2.32 inches at Tygart Dam, W. Va., to 1.20 inches at Rowlesburg, W. Va. Both the Allegheny and Monogahela Rivers rose rapidly, and although the bulk of the flow from the Allegheny was through Pittsburgh by the time the Monongahela crested, the Pittsburgh stage rose to within about 2 feet of flood stage on the 25th. Flood stages were exceeded practically the entire length of the Allegheny River, while flood stage was exceeded only slightly on the Monongahela River at Lock No. 3., Elizabeth, Pa.

The storm of March 23 and 24 caused heavy rain over the Tygart drainage basin and the Middle Fork in W. Va., which resulted in a rapid rise of those two streams to above flood stage. Some basements were flooded at Philippi, Elkins, and Belington, W. Va., due to the backing up of water in storm sewers. Some damage occurred to bridges, culverts, and roadbeds in Randolph County.

Frequent and heavy precipitation caused some flooding in the Hocking, Scioto, and Miami Rivers in Ohio during the latter part of the month.

Frequent precipitation over the Ohio River watershed during the beginning and middle of March resulted in a strong stream flow and rather high stages along the Ohio during the first 2 weeks of the month. Several stations along the lower Ohio were above flood stage during the first decade. Overflows occurred again along the Ohio towards the end of the month as a result of the general heavy rain that occurred on the 26th and 27th. The rain during this period averaged around 1.75 inches. Several of the tributaries in Indiana went above flood stage as a result of this heavy rain. The only flooding in Illinois and Kentucky occurred along the Ohio River. In western North Carolina light flooding occurred in the French Broad on the 28th.

Very little damage occurred in the Ohio River Basin as a result of the overflows except the retarding of spring field work. Damages from these floods would have been considerable had they occurred during the growing season.

White, Arkansas, and Red Basins.—Minor flooding occurred in the White River Basin during March. The initial rise of most of these floods began in February.

The highest floods occurred in the Ouachita Basin, but very little damage occurred. Thousands of acres of tillable land were covered along the Ouachita from Camden, Ark., to Huttig, Ark., but this land is not ordinarily planted until late spring, due to the high probability of spring floods. Flood stages were exceeded on the White River by 1 to 2 feet, from Augusta, Ark., to the mouth, but damage was extremely light because of the major levee system along the lower White River.

Minor flooding occurred in the Arkansas Basin on the Poteau River near Poteau, Okla., and on the Neosho River in the vicinity of Oswego, Kans.

Lower Mississippi Basin.—The Tallahatchie River at Swan Lake and the Yazoo River at Greenwood and Yazoo City, Miss., remained above flood stage throughout the month. Occasional rains during the month were instrumental in holding these rivers nearly stationary.

The Atchafalaya and Ouachita Rivers in Louisiana continued to rise during the first part of March as a result of the heavy rains during the first decade over the southeastern portion of the State. This rise was followed by a period of little change until rises began on the Mississippi and the Atchafalaya toward the close of the month. Flood stages were exceeded at Monroe, La., on the Ouachita, and at Atchafalaya and Morgan City, La., on the Atchafalaya. Large areas of Orleans, Jefferson, Plaquemines, LaFourche, and Terrebonne Parishes in Louisiana were flooded as a result of the excessive rain on the 5th and 6th. In New Orleans, La., 700 persons were evacuated from flooded areas. Two of the three highways entering the city were closed and city traffic was disrupted. At the New Orleans Weather Bureau City Office, 10.93 inches of rain were recorded for a 24-hour period.

West Gulf of Mexico drainage.—Heavy rains occurred over northeast Texas and central Louisiana on March 2, and caused light to moderate flooding on the Sabine River in Texas and light overflow in the Mermentau River Basin. The Sabine rose to 17.4 feet at Mineola, Tex., on the 6th and crested at 32.4 feet at Gladewater, Tex., on the 10th. The Nespique (which flows into the Mermentau) rose to 20.8 feet at Basile, La., on the 8th, and the Mermentau reached 5.6 feet at Mermentau, La., on the 7th. All streams were within their banks by the middle of the month. The greatest damage occurred at Gladewater, Tex., and was confined mostly to machinery and loss of oil.

Moderate flooding occurred on the Trinity River in Texas and two of its tributaries as a result of heavy rains during the last week of February. Heavy run-off occurred from these rains, as the ground was well saturated with moisture as a result of nearly continuous rain from January 16 to February 13. There were only 7 days without rain during that period. Elm Fork River crested at a stage of 6.6 feet above flood level at Carrollton, Tex., which would have caused much damage during the growing season. The Trinity River crested at a stage of 40.5 feet at Dallas, Tex., 12.5 feet above flood stage on the 27th of February.

Pacific Slope drainage.—A moderate rise occurred in the Sacramento River Basin in California from March 23–26 but no flood stages were reached. This rise resulted from heavy rain that accompanied the slowly southward-moving east-west front on the 22d that brought excessive rains as far south as Red Bluff, Calif. Heavy run-off was concentrated above Shasta Dam and in the east side creeks as far south as Oroville. The upper Sacramento River rose sharply on the 23d to a crest at Red Bluff of 18.7 feet. The only damage that occurred was on the lower reaches of some creeks on the east side of the Sacramento River in Butte County: namely, the Pine, Rock, Mud, and Cherokee Creeks. Several thousand acres of grain and pasture lands were flooded by overflow from these creeks. Some damage resulted from injury to growing grain crops.

A minor freshet occurred March 22–23, in a few tributaries of the Willamette River in Oregon.

FLOOD STAGE REPORT FOR MARCH 1948

[All dates in March unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Michigan					
Red Cedar:	*Feet*			*Feet*	
Williamston, Mich.	7	16	16	7.0	16
		19	22	10.7	20
East Lansing, Mich.	8	Feb. 29	1	9.3	Feb. 29
		20	23	11.3	20
Grand:					
Eaton Rapids, Mich.	6	20	22	6.5	20–21
Lansing, Mich.	11	Feb. 29	Feb. 29	11.0	Feb. 29
		20	23	14.7	21
Portland, Mich.	12	3	3	12.0	3
Ionia, Mich.	21	20	24	24.3	21
Lowell, Mich.	15	20	25	19.0	22
Grand Rapids, Mich.	15	20	25	18.4	23
Lake Huron					
Flint:					
Columbiaville, Mich.	10	Feb. 20	11	14.9	2
		14	14	10.3	14
		16	[2]	17.0	21
Flint, Mich.	11	20	23	14.0	20
Cass: Vassar, Mich.	14	20	21	20.8	20
Shiawassee: Owosso, Mich.	7	Feb. 29	Feb. 29	7.1	Feb. 29
		20	23	10.3	20
Chippewa: Mt. Pleasant, Mich.	13	20	20	13.3	20
Pine: Alma, Mich.	9	19	23	12.6	19
Tittabawassee: Midland, Mich.	18	20	23	23.2	21
Saginaw: Saginaw, Mich.	19	21	27	22.4	22–23
Lake Erie					
St. Marys: Decatur, Ind.	13	Feb. 17	Feb. 29	15.3	Feb. 19
		22	25	18.5	23
		27	29	13.5	28
St. Joseph: Montpelier, Ohio.	10	1	3	12.5	1
		20	25	12.8	23
		27	30	11.1	28
Maumee:					
Fort Wayne, Ind.	15	1	1	15.6	1
		22	25	17.3	22, 23
		27	28	15.8	27
Defiance, Ohio	10	23	24	11.3	23
Napoleon, Ohio.	10	23	24	11.3	23
ATLANTIC SLOPE DRAINAGE					
Pemigewassett: Plymouth, N. H.	11	22	23	11.9	23
Contoocook: Penacook, N. H.	7	23	23	7.2	23
Suncook: Chichester, N. H.	10	23	23	12.5	23
Merrimack:					
Concord, N. H.	12	24	24	12.2	24
Bow, N. H.	5.5	24	24	5.5	24
Connecticut:					
White River Junction, Vt.	18	20	20	18.7	20
Walpole, N. H.	30	22	23	33.7	22
Montague City, Mass.	28	22	24	35.9	23
Holyoke, Mass.	9	22	24	11.4	23
Hartford, Conn.	16	21	[2]	24.5	24
				19.2	29
Hudson: Albany, N. Y.	11	23	23	11.2	23
Unadilla: Rockdale, N. Y.	11	21	22	11.9	21
Tioughnioga: Whitney Point, N. Y.	12	17	17	13.1	17
		19	30	14.9	22
Chenango:					
Sherburne, N. Y.	8	17	25	9.6	22
Greene, N. Y.	8	17	25	14.6	22
Binghamton, N. Y.	16	17	25	24.0	22
Chemung:					
Corning, N. Y.	16	22	22	17.0	22
Chemung, N. Y.	12	17	17	15.0	17
		20	23	18.3	22
Elmira, N. Y.	12	17	17	12.1	17
		22	22	15.2	22
Susquehanna:					
Oneonta, N. Y.	12	17	31	18.3	22
Unadilla, N. Y.	11	17	17	11.0	17
		20	23	13.2	22
Bainbridge, N. Y.	13	17	24	20.5	22
Conklin, N. Y.	11	16	25	20.8	22
Binghamton, N. Y.	14	21	24	20.1	22
Vestal, N. Y.	14	17	25	19.0	18
				27.7	22
Towanda, Pa.	16	20	24	17.6	21
				23.0	23
Wilkes-Barre, Pa.	22	21	25	28.75	23
Danville, Pa.	20	23	25	22.7	24

See footnote at end of table.

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates From—	To—	Crest [1] Stage	Date
ATLANTIC SLOPE DRAINAGE—con.					
Roanoke:	*Feet*			*Feet*	
Alta Vista, Va.	10	24	25	10.5	25
Williamston, N. C.	10	Feb. 10	(2)	11.1	15
				10.6	30–31
Tar:					
Rocky Mount, N. C.	8	10	10	8.5	10
Tarboro, N. C.	18	Feb. 15	Feb. 23	25.3	Feb. 19
		12	14	18.6	13
Greenville, N. C.	13	12	15	13.6	14
Neuse:					
Neuse, N. C.	14	9	11	15.4	10
Smithfield, N. C.	13	8	14	16.6	11
Goldsboro, N. C.	14	10	19	17.7	15
Kinston, N. C.	14	Feb. 8	2	20.8	Feb. 22
		10	21	16.1	17–18
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	9	13	26.9	10
Lynches: Effingham, S. C.	14	14	14	14.4	14
Waccamaw: Conway, S. C.	7	Feb. 11	3	8.5	24, 25
Pee Dee					
Cheraw, S. C.	30	8	9	32.8	9
Pee Dee, S. C.	19	9	23	22.3	14
		31	2	19.0	31
Saluda:					
		7	8	6.5	7
Pelzer, S. C.	6	24	24	6.5	24
		28	29	6.5	28
Chappells, S. C.	13	17	17	15.2	17
Broad: Blairs, S. C.	14	7	9	17.6	8
Catawba: Catawba, S. C.	11	8	8	11.0	8
Wateree: Camden, S. C.	23	8	9	23.5	8
Edisto:					
		8	16	8.9	12
Orangeburg, S. C.	8	17	27	8.6	18
		29	30	8.2	29–30
Givhans Ferry, S. C.	10	1	(2)	13.8	21
		8	10	23.5	9
Savannah: Butler Creek, Ga.	21	18	18	21.0	18
		25	25	21.2	25
Ogeechee:					
Midville, Ga.	6	11	13	6.6	12
		21	22	6.1	22
				9.4	14–15
Dover, Ga.	7	Jan. 21	(2)	9.0	21
				8.7	25
Ocmulgee:					
Macon, Ga.	18	8	8	18.0	8
		25	26	18.2	25
				14.2	14
Abbeville, Ga.	11	9	(2)	12.7	24
				12.9	31
Oconee:					
		7	10	21.4	8
Milledgeville, Ga.	20	18	18	20.7	18
		24	25	20.4	24
		12	20	17.6	15
Mt. Vernon, Ga.	16	23	25	16.6	24
		31	(2)	16.4	31
Altamaha:					
Charlotte, Ga.	12	Jan. 25	(2)	20.7	Feb. 21
				20.1	18, 19
Piney Bluff, Ga.	17	Feb. 12	4	21.0	Feb. 21
		10	(2)	20.7	18, 19
EAST GULF OF MEXICO DRAINAGE					
Flint:					
Albany, Ga.	20	10	16	25.0	13
Bainbridge, Ga.	25	10	18	28.9	15
Apalachicola:					
Chattahoochee, Fla.	20	9	16	22.1	12
				21.0	Feb. 15, 16
Blountstown, Fla.	15	Jan. 25	(2)	22.1	12
				20.7	28
Choctawhatchee:					
Newton, Ala.	19	7	8	20.8	7
Geneva, Ala.	23	8	13	26.6	9
Caryville, Fla.	12	6	20	14.5	10
Conecuh:					
River Falls, Ala.	35	7	7	36.4	7
Brewton, Ala.	17	9	13	18.0	11
Coosa:					
Mayos Bar Lock, Ga.	28	Feb. 10	Feb. 11	28.9	Feb. 11
		Feb. 13	Feb. 18	31.7	Feb. 15
Lock No. 4, Lincoln, Ala.	17	Feb. 10	Feb. 20	19.7	Feb. 15
Alabama:					
Montgomery, Ala.	35	Feb. 12	Feb. 16	35.8	Feb. 12
Millers Ferry, Ala.	40	7	13	43.7	9
Black Warrior: Eutaw, Ala.	35	4	14	45.0	10
Tombigbee:					
Aberdeen, Miss.	34	7	7	34.0	7
		18	22	38.4	19
				38.2	20
Gainesville, Ala.	36	Feb. 10	17	51.0	Feb. 21
				44.9	12
				54.3	1
Lock No. 4, Demopolis, Ala.	39	Feb. 9	Apr. 7	56.1	11–12
				47.1	30

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates From—	To—	Crest [1] Stage	Date
EAST GULF OF MEXICO DRAINAGE—continued.					
Tombigbee—Continued	*Feet*			*Feet*	
Lock No. 3	33	Jan. 31	(2)	56.9	1
				57.4	8
				49.6	25
				59.0	1, 4
Lock No. 2	46	Feb. 10	Apr. 7	59.5	8
				52.0	25
Lock No. 1	31	Feb. 11	(2)	42.7	8
Leaf:					
Hattiesburg, Miss.	22.5	6	9	25.0	7
Beaumont, Miss.	20	5	14	27.2	9
Okatibbee: Meridian, Miss.	15	2	11	22.2	7
Chickasawhay:					
Enterprise, Miss.	20	3	9	25.6	7
Shubuta, Miss.	30	4	14	37.85	8
Waynesboro, Miss.	35	6	12	38.2	9
Pascagoula: Merrill, Miss.	22	4	17	25.9	10
Bogue Chitto: Franklinton, La.	11	3	8	15.0	6
Pearl:					
Edinburg, Miss.	20	5	13	23.3	8
Jackson, Miss.	18	Feb. 8	22	30.6	11
Goshens Springs (near), Miss.	17	3	17	23.1	10
Monticello, Miss.	15	Feb. 20	25	21.2	8
Columbia, Miss.	17	Feb. 26	24	22.15	7
Pearl River, La.	12	Feb. 13	(2)	17.7	7
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Pecatonica: Freeport, Ill.	10	Feb. 28	7	16.4	2
		16	24	15.8	20
Rock: Moline, Ill.	10	Feb. 28	12	12.6	2
				11.0	9
		16	(2)	14.5	23
Cedar: Waterloo, Iowa	15	Feb. 29	2	15.8	1
Iowa: Wapello, Iowa	10	Feb. 29	2	11.0	1
		18	26	14.6	21
Zumbro: Thielman, Minn.	35	Feb. 28	Feb. 29	37.9	29
		19	21	39.6	20
Whitewater: Beaver, Minn.	7	17	19	8.0	19
Raccoon: Van Meter, Iowa	13	19	22	19.0	19
Middle:					
Des Moines (SW 18th St.), Iowa	10	19	23	16.0	20
Indianola, Iowa	14	19	21	17.2	19
Des Moines:					
Tracy, Iowa	14	20	24	20.1	22
Eddyville, Iowa	15	19	25	21.3	22
Ottumwa, Iowa	9	17	17	9.5	17
		20	25	14.7	23
Illinois:					
Morris, Ill.	13	20	24	20.0	20
Peru, Ill.	17	Feb. 28	1	18.9	Feb. 29
		17	17	17.8	17
		19	Apr. 2	23.5	20
Peoria, Ill.	18	20	Apr. 6	22.2	24
Havana, Ill.	14	19	(2)	19.8	24
Beardstown, Ill.	14	20	(2)	21.6	31
Meramec:					
Pacific, Mo.	11	24	24	11.3	24
Valley Park, Mo.	14	28	29	15.5	28
Mississippi:					
Gordons Ferry, Iowa	13	Feb. 29	3	13.2	1–2
		31	(2)	13.0	31
Muscatine, Iowa	15	20	26	16.6	22
Keithsburg, Ill.	12	19	29	14.8	22
Grafton, Ill.	18	22	Apr. 6	25.2	27
St. Louis, Mo.	30	23	Apr. 1	34.6	27
Chester, Ill.	27	24	Apr. 4	32.7	28
Cape Girardeau, Mo.	32	23	Apr. 7	37.8	29
Missouri Basin					
Big Sioux: Akron, Iowa	12	1	4	18.5	2
		18	24	16.4	22
Floyd: James, Iowa	14	1	3	16.1	1
		16	20	17.1	17
Platte: Ashland, Nebr.	7	1	1	7.7	1
Republican:					
Hardy, Nebr.	10	17	17	10.0	17
		18	18	10.3	18
Clay Center, Kans.	15	18	20	17.9	19
Wakefield, Kans.	11	19	19	11.4	19
Junction City, Kans.	10	19	19	10.3	19
Little Blue:					
Endicott, Nebr.	9	17	17	9.1	17
		18	22	11.3	20
				11.6	21
Hanover, Kans.	14	19	20	15.8	20
Big Blue:					
Beatrice, Nebr.	16	1	1	16.0	1
		20	24	22.9	22
Barnston, Nebr.	18	19	24	21.9	19
				24.3	22
Blue Rapids, Kans.	20	1	1	25.7	1
		19	24	28.8	19
				23.0	23
Randolph, Kans.	22	19	20	24.8	20
Kansas: Manhattan, Kans.	17	19	21	18.8	20

See footnotes at end of table.

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	T—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Missouri Basin—Continued					
Grand:	*Feet*			*Feet*	
Chillicothe, Mo.	18	16	18	23.3	17
		19	22	27.9	20
		1	2	13.3	2
Brunswick, Mo.	12	19	27	19.5	23
		30	30	12.0	30
Marais des Cygnes:					
Garnett, Kans.	26	19	19	28.15	19
Osawatomie, Kans.	28	20	20	28.2	20
La Cygne, Kans.	25	20	23	27.9	21
Trading Post, Kans.	24	23	24	24.7	24
Missouri:					
Mobridge, S. Dak.	16	31	31	17.9	31
Nebraska City, Nebr.	15	19	20	15.9	19
St. Joseph, Mo.	17	20	21	17.5	20
Lexington, Mo.	22	20	23	24.3	21
Waverly, Mo.	18	20	24	21.6	22
Boonville, Mo.	21	21	25	24.2	24
Jefferson City, Mo.	23	22	25	24.6	24
Herman, Mo.	21	22	27	23.9	24, 25
St. Charles, Mo.	25	22	29	29.8	26
Ohio Basin					
Allegheny:					
Port Allegany, Pa.	9	22	23	11.2	22
Olean, N. Y.	10	20	25	11.6	20
				16.5	23
Warren, Pa.	14	22	24	17.0	22
Franklin, Pa.	17	22	24	20.4	22
Parkers Landing, Pa.	20	22	23	20.7	23
Lock No. 9, Rimerton, Pa.	18	22	23	21.5	23
Lock No. 7, Kittanning, Pa.	23	23	23	23.1	23
Lock No. 5, Schenley, Pa.	21	22	23	23.7	23
Lock No. 4, Natrona, Pa.	19.5	22	23	21.2	23
Lock No. 3, Acmetonia, Pa.	20	23	23	20.8	23
Tygart:					
Belington, W. Va.	14	24	24	15.2	24
Philippi, W. Va.	17	24	24	19.6	24
Middle Fork: Midvale, W. Va.	11	24	24	11.4	24
Monongahela: Lock No. 3, Elizabeth, Pa.	23	25	25	23.2	25
Hocking:					
Enterprise, Ohio	12	28	28	14.0	28
Athens, Ohio	17	28	28	17.6	28
Scioto:					
La Rue, Ohio	11	24	24	12.2	24
		28	28	11.4	28
Prospect, Ohio	10	25	25	10.2	25
Circleville, Ohio	14	25	25	14.7	25
		28	29	17.0	28
Chillicothe, Ohio	16	29	29	18.3	29
Mad:					
Piketon, Ohio	15	17	17	18.7	17
		27	30	22.2	28
Springfield, Ohio	84	24	24	87.1	24
		27	28	87.8	27
Miami: Middletown, Ohio	15	27	27	15.6	27
West Fork:					
Anderson, Ind.	10	20	20	10.6	20
		24	25	14.0	24
		27	28	12.8	28
Noblesville, Ind.	14	28	28	14.3	28
Indianapolis, Ind.	12	28	28	12.0	28
Spencer, Ind.	14	25	(2)	20.0	28-29
Elliston, Ind.	18	24	(2)	26.5	30
Edwardsport, Ind.	12	1	4	13.9	2
		21	(2)	22.5	31
East Fork:					
Seymour, Ind.	14	27	30	17.5	28
Williams, Ind.	10	31	(2)	10.3	31
White:					
Petersburg, Ind.	16	27	(2)	22.0	31
Hazleton, Ind.	16	27	(2)	22.1	31
Wabash:					
Bluffton, Ind.	10	22	22	11.0	22
Wabash, Ind.	12	Feb. 28	1	15.7	Feb. 28
		22	29	18 6	22
Lafayette, Ind.	11	Feb. 29	3	17.0	1
		21	31	18.6	24
				17.7	28
Covington, Ind.	16	Feb. 29	4	19.7	2
		22	(2)	21.9	25
Terre Haute, Ind.	14	1	5	15.5	4
		22	(2)	21.2	28
Vincennes, Ind.	16	27	(2)	23.1	31
Mt. Carmel, Ill.	17	28	(2)	22.4	31
New Harmony, Ind.	15	30	(2)	16.4	31
French Broad: Asheville, N. C.	6	28	28	6.4	28
Tennessee: Kentucky Dam, Ky.	31	Feb. 13	13	50.1	Feb. 19, 20, 31
		24	2	38.9	
Ohio:					
Madison, Ind.	46	----------	----------	44.8	29
Dam No. 41, Louisville, Ky.:					
Upper Gage	28	29	31	28.5	30
Lower Gage	55	29	30	55.3	30
Dam No. 44, Leavenworth, Ind.	53	28	Apr. 2	56.4	30
Dam No. 45, Addison, Ky.	47	29	Apr. 2	49.3	31
Tell City, Ind.	38	28	2	42.6	31
Dam No. 46, Owensboro, Ky.	41	31	Apr. 2	41.6	Apr. 1

See footnote at end of table.

FLOOD STAGE REPORT FOR MARCH 1948—Continued

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Ohio—Continued	*Feet*			*Feet*	
Dam No. 47, Newburgh, Ind.	38	3	5	38.6	4
		28	(2)	43.6	31
Dam No. 48, Near Henderson, Ky.	38	28	(2)	42.2	31
Mount Vernon, Ind.	35	Feb. 18	Feb. 29	41.2	Feb. 23
		4	6	35.2	5
		28	(2)	39.0	Apr. 1
Dam No. 49, Uniontown, Ky.	37	Feb. 19	Feb. 29	42.2	Feb. 24
		29	(2)		
Shawneetown, Ill.	33	Feb. 17	9	42.4	Feb. 24
				36.2	6
		26	(2)	39.2	31
Dam No. 50, Fords Ferry, Ky.	34	Feb. 17	10	45.5	Feb. 25
		24	(2)		
Dam No. 51, Galconda, Ill.	40	Feb. 19	Feb. 29	44.1	Feb. 25
		31	(2)	44.0	Apr. 5
Paducah, Ky.	39	29	(2)	42.3	Apr. 4
Dam No. 52, Brookport, Ill.	37	Feb. 16	12	47.2	Feb. 22
		24	(2)	44.7	Apr. 4
Dam No. 53, Near Mound City, Ill.	42	Feb. 16	13	50.4	Feb. 22
				46.1	5-8
		23	(2)	51.6	Apr. 2
Cairo, Ill.	40	Feb. 17	13	46.8	Feb. 23
		22	(2)	51.6	Apr. 3
White Basin					
Black: Black Rock, Ark.	14	2	4	14.6	3
		28	28	14.0	28
White:					
Augusta, Ark.	32	5	9	32.2	7
Georgetown, Ark.	21	2	13	22.9	8-9
		Apr. 1	Apr. 4	21.1	Apr. 2-3
Des Arc, Ark.	24	4	14	25.1	8-10
Clarendon, Ark.	26	Feb. 29	(2)	28.4	8-14
St. Charles, Ark.	25	1	(2)	26.9	13-14
Arkansas Basin					
Neosho: Oswego, Kans.	17	24	24	17.3	24
Deep Fork: Dewar, Okla.	18	26	27	18.3	26
Poteau: Poteau, Okla.	21	Feb. 27	5	28.5	Feb. 28
				26.6	3
		7	7	22.2	7
Petit Jean: Danville, Ark.	20	Feb. 25	12	22.95	Feb. 27
Red Basin					
Little Missouri: Boughton, Ark.	20	3	4	20.7	4
Saline: Benton, Ark.	20	1	2	22.4	2
Ouachita:					
Arkadelphia, Ark.	17	Feb. 26	4	21.1	Feb. 28
				23.7	2
Camden, Ark.	26	Feb. 12	Feb. 22	33.3	Feb. 17
		Feb. 27	13	35.4	6
		23	Apr. 1	34.3	26
Monroe, La.	40	18	(2)	40.2	23, 24
Little: Whitecliffs, Ark.	25	Feb. 29	7	26.3	4
Sulphur:					
Hagansport, Tex.	38	2	7	40.2	2
		23	23	38.7	23
Naples, Tex.	22	1	13	26.9	6
Cypress: Jefferson, Tex.	18	6	10	20.7	8
Lower Mississippi Basin					
St. Francis: St. Francis, Ark.	18	31	(2)	----------	----------
Coldwater: Sarah, Miss.	18	2	4	20.0	2
		6	7	19.3	6
Tallahatchie: Swan Lake, Miss.	26	1	(2)	30.1	21
Yazoo: Greenwood, Miss.	35	1	(2)	37.9	2
				37.4	6
				37.3	17
				37.3	25
				37.3	27
Yazoo City, Miss.	29	1	(2)	35.6	19, 20
				35.6	23
Mississippi:					
New Madrid, Mo.	34	Feb. 21	13	36.5	Feb. 26
		25	(2)	40.5	Apr. 4
Caruthersville, Mo.	32	Feb. 21	15	34.7	Feb. 26-27
		25	(2)	34.3	8-9
Atchafalaya Basin					
Atchafalaya:					
Atchafalaya, La.	25	Feb. 26	(2)	26.9	13-18
Morgan City, La.	6	19	23	6.4	19
WEST GULF OF MEXICO DRAINAGE					
Mermenteau: Mermenteau, La.	5	5	9	5.6	7
Sabine:					
Mineola, Tex.	14	2	10	17.4	6
Gladewater, Tex.	26	6	15	32.4	10
Bon Wier, Tex.	17	Feb. 22	Feb. 29	17.6	Feb. 26
Elm Fork: Carrolton, Tex.	6	Feb. 25	1	12.6	Feb. 26
East Fork: Rockwall, Tex.	10	Feb. 6	Feb. 9	10.3	Feb. 9
		Feb. 26	8	16.8	Feb. 27
		23	24	11.2	24
Trinity:					
Dallas, Tex.	28	Feb. 26	4	40.5	Feb. 27
Rosser, Tex.	26	Feb. 29	8	34.8	2
Trinidad, Tex.	28	1	13	40.0	5
Long Lake, Tex.	40	7	14	42.9	9
Liberty, Tex.	24	12	23	26.0	20

[1] Provisional.

[2] Continued at end of month.